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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): SB-514

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]

on _____

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Application Number	Filed
10/533,560	May 20, 2005

First Named Inventor: Gebhard Zobl et al.

Art Unit	Examiner
1791	Russell J. Kemmerle III

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- ☐ applicant/inventor.
- ☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)
- ☑ attorney or agent of record. Registration number 34956.
- ☐ attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____

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OCTOBER 1, 2009
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

Argument in Support of
Pre-Appeal Brief Request for Review

This request raises two primary issues. First, applicants are at a loss with regard to the examiner's conclusion that the two-step molding with respectfully changed draft angles should be obvious from a prior art teaching that teaches an easy-removal draft angle. Second, the final rejection raises the question whether or not the patent examiner should continue to make certain factual statements and ascribe such information to the alleged understanding of the "person of ordinary skill in the art" when applicants have provided proof in the form of a Rule 132 Declaration tending to show that the patent examiner's contentions are indeed wrong.

Prior Art Does not Teach Increasing a Draft Angle in a Second Pressing Step: Claim 8 recites, *inter alia*,

> *pressing the powdery alloy (with 20% chromium) in a two-stage pressing operation:*
>
> > *in the first pressing stage, pressing . . . side surfaces of the elevations enclosing an angle of inclination α' in a range from 90° - 150° with a respectively adjacent boundary surface of the basic body, and*
> >
> > *in the second pressing stage, pressing the elevations to near final shape, with the angle of inclination α' increased to a value α in a range from 95° - 170°.*

The Examiner utilizes the secondary reference Koga with regard to these features. Koga states the angle of inclination of the protrusions is preferably between 91º and 100º. This is nothing more than a very basic teaching concerning the draft angle of a die mold. Depending on the material being molded, the draft angle must always exceed 90º so that the product may be safely ejected. As a rule of thumb, 0.5º is considered a minimum and several degrees may be utilized, as long as the resulting product is not adversely affected. Here, Koga's protrusions may have any

single inclination angle (i.e., preferable range is 91° - 100°; an alternative embodiment has a draft angle of 105° (Fig. 6)).

As previously stated, Fig. 6 of Koga illustrates an alternative (!) embodiment with an increased angle of inclination, relative to the other embodiments. There is nothing in the reference that would suggest a first pressing step with a given draft angle that is followed by a second pressing step with an increased draft angle (relative to the first draft angle).

The Examiner concludes that a two step pressing process "would have been obvious" from Yoshida ("with the second pressing step reducing oversized knobs") and that the angle of inclination of the knobs would be greater than 90° because of Koga.

This conclusion is not supported in the facts. The claims require an "increased" draft angle from the first to the second pressing step. There is absolutely nothing in the prior art that would suggest two different draft angles during a two-step pressing process.

Koga does indeed disclose certain draft angles of his dies and the resulting product. Again, this is rudimentary molding technology where a draft angle of greater than 90° makes it easier to release the pressed piece from the mold. Koga also invites any of a variety of angles of inclination. This is but a molding process parameter that is driven by the material and by the work piece. We do not agree, however, that either or these issues have any bearing on the question at hand. The secondary reference simply does not suggest a two-step pressing sequence with the inclination angles as claimed.

According to the secondary reference Koga, the protrusions (6a) are either formed by way of the plate insert 2 of Figs. 1 and 5 or by way of the plate insert 2 of Fig. 6. The former plate has straight bores 2a (with a slight draft angle, as noted above), while the latter has inclined, conical bores 2a. The two embodiments represent alternatives. There is nothing in Koga – nor in any other reference, for that matter –

that would suggest two different angles of inclination for the protrusions to be formed in two different pressing steps.

Claims 8 and 16 call for a second pressing step in which "the angle of inclination [of the elevations is] increased" relative to an angle of inclination formed in the first pressing step. The prior art does not disclose such a process sequence, nor does the art render same obvious.

The Expert Statements in the Rule 132 Declaration Should be Given Weight:

The examiner refuses to accept the declaration by Dr. Sigl (the "Sigl Declaration) because, allegedly, the declaration contains conclusions regarding the ultimate issue. While it is indeed true that conclusions that go to the ultimate legal question (i.e., obvious vs. non-obvious) should not be given weight, we respectfully submit that the opinion is primarily presented with regard to factual questions and with regard to the technical understanding of those of ordinary skill in the art. Dr. Sigl is established as an expert (items 1-5) in the pertinent field. As such, Dr. Sigl is preeminently qualified to provide "expert opinions."

In previous submissions we had repeatedly argued that the production of mold components from graphite powder is possible only with methods that cannot be compared with production techniques known from conventional ("classical") powder metallurgy.

The production of complex moldings in conventional powder metallurgy requires that the power mixture is first produced with a small amount of pressing aids (typically in the form of a wax) and the mixture is then pressed in dies at a very high pressure in a range of 200 to 1000 Mpa. Then the intermediate product, which has a consistency similar to chalk, is sintered at a temperature just below the melting point of the highest melting component and for a long period of time (up to one hour or even more). The part is thereby solidified and rendered largely tight.

We contrast this with the production of moldings from graphite powder. The references Yoshida and Koga represent such technology. There, the graphite powder is mixed with a large content of heat-curing resin (10-40% by weight), which

renders the mixture flowable and formable. Most importantly, however, the resin is cured upon further processing, which provides the rigidity and the carrier matrix for the final product. Yoshida, col. 7, lines 5 et seq.

After the mixture is pressed in a matrix press at much lower pressures as compared with the powder metallurgy process (2-10 MPa in a first press and 10-100 MPa in a second press) – Yoshida, col. 6, lines 46 et seq. – and heated in the matrix to 150 – 170° for curing the resin, the process is finished. No sintering at high temperatures is required, as it is required in the context of the powder-metallurgical processes. Besides, such sintering would not be possible, because the resin would vaporize and the molding would become useless because it would be entirely porous.

This foregoing juxtaposition clearly shows that the two processes – the production of moldings from graphite powder as opposed to the production of moldings from metal powders – are very different. A person of skill in the art of powder metallurgy would not look to processes and methods known in the production of graphite powder separators and to apply such to the production of separators from chromium alloys.

We respectfully submit that the examiner has not made out a prima facie case of obviousness. The claims are patentable over the art of record. A favorable response from the Pre-Appeal Brief Review Conference is respectfully solicited.

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